

APR 20 1955

Dear Dr. Bisset:

Lately I read over again your report (1948 JGM) on the polarized growth of bacterial cells, which I found most intriguing. Have you done much more on this since? It may be especially appealing because some of my own studies on the fate of formazan granules may bear out your idea of "budding", and I also find this a provoking notion to keep in mind for some of our genetic studies on motility "trails" in *Salmonella*.

There was one point, however, that I could not concur in from my own observations-- the idea that the new-born *Salmonella* is essentially non-flagellate. I have often watched *S. typhimurium* and others dividing and especially noted that both daughter cells are promptly motile to an equal degree. Since our strains are quite different, the discrepancy may not be crucial, and perhaps it is optimistic in any event to try to reconcile functional and morphological evidences. Alternatively, I may have misunderstood your writing: do you find this difference in flagellation in cells dividing during the later logarithmic phase, or especially soon after the germination of the microcyst. (It must take a long time to reach the microcyst stage in my material; I have not noticed immotility in still viable cultures).

I am not trying to press this point, as both our observations may well be correct under the different circumstances. I did want to ask your comment on this approach to the problem, and to ask whether you had made any studies yourself on the immediate development of motility in dividing cells.

I was disappointed not to find a reprint of this '48 paper in my own file; I had the impression, perhaps erroneous, you had once sent it to me. In any event I would be grateful to you if you could keep me up to date on your provocative papers, and I would be grateful whether I necessarily commit myself to agreeing with all of them or not. I am of course happy to continue exchange.

You may be interested to learn that I have lately learned how to find the sexual stage of *E. coli* K-12: it proves to be a temporary conjugation, rather like *Paramecium*. Of the exconjugants, however, only one (the "Q") engenders recombinants; the other remains viable but genetically pure. We have not yet seen any morphological details such as conjugation tubes, and I am quite openminded about their existence. The conjugal pairs do remain associated for an hour or two; it takes some tricks to find them; over a third of the pairs do result in genetic recombination.

With best regards,

Yours sincerely

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You should be pleased at the outcome with M. cryophilus which I have just agreed with (not for publ.)

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